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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,696	06/06/2006	Nigel Paul Schofield	M03B138	7400
20411 7590 05/02/2008 THE BOC GROUP, INC. 575 MOUNTAIN AVENUE MURRAY HILL, NJ 07974-2064				
EXAMINER				
WHITE, DWAYNE J				
ART UNIT		PAPER NUMBER		
3745				
MAIL DATE		DELIVERY MODE		
05/02/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/581,696

Applicant(s)

SCHOFIELD, NIGEL PAUL

Examiner

DWAYNE J. WHITE

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 24-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20, 22 and 24-32 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/888)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Examiner's Note

Due to inadvertent errors made in the Office Action dated 02 April 2008, the Examiner has hereby vacated the previous Office Action and replaced it with the Office Action herein. The Examiner regrets any inconvenience this may have caused Applicant.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13, 15-20, 22 and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kabasawa et al. in view of (US 2003/0077187 A1). Kabasawa et al. discloses a regenerative pumping mechanism comprising a rotor and a stator; the rotor having a series of blades positioned in an annular array on one side of the rotor and is supported by magnetic bearings 8/12 and roller bearings 6/7; and a means for actively controlling the relative axial movement between the rotor and the stator to control the axial clearance between the rotor and the stator. The means disclosed by Kabasawa et al. comprising magnet bearing 20 having two electromagnets 14 and 15 mounted on the stator, a sensor 17 for detecting the displacement of the rotor (Paragraph 73, and a control unit 17. The magnetic bearing further comprises a magnetic bearing rotor 18 between the first and second electromagnets and the control unit controls the strength of the magnetic field generated by the electromagnet (Page 4, paragraph

72). Kabasawa et al. also discloses an embodiment wherein a magnetostrictive material is used as the actuator for controlling the axial movement (Paragraphs 141-142). Kabasawa does not disclose the rotor blades extending axially into an annular channel of stator.

Schofield teaches a molecular pump having axially extending rotor blades and corresponding stator channels. Since both Schofield and Kabasawa et al. disclose molecular pumps and it is well known in the art that either type of pump can use magnetic bearings, it would have been obvious at the time the invention was made to one of ordinary skill in the art to modify a pumping stage of Kabasawa et al., with the teaches of Schofield, by providing an arrangement as claimed for the purpose of achieve the desired vacuum.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kabasawa et al. in view of Schofield in further view of Tarumoto et al. (4,636,285). Kabasawa et al. as modified by Schofield in the above rejection discloses all of the claimed subject matter except for the rotor or stator being formed of a wear resistant material.

Tarumoto et al. teaches a wear resistant coating for sliding member. Since Kabasawa et al. and Tarumoto et al. teach components that move relative to stationary components, it would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the rotor and stator of Kabasawa et al., with the teaches of Tarumoto et al., by providing a wear resistant coating for the purpose of reducing wear on the components.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means for actively controlling

relative axial movement arranged to axially move at least one of the rolling bearings must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

CONCLUSION

Allowable Subject Matter

Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DWAYNE J. WHITE whose telephone number is (571)272-4825. The examiner can normally be reached on 7:00 am to 3:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dwayne J White/
Examiner, Art Unit 3745

DJW